

(No Model.)

A. KAHL.

BLAST REGULATOR FOR FANS.

No. 329,567.

Patented Nov. 3, 1885.

Fig. 1.

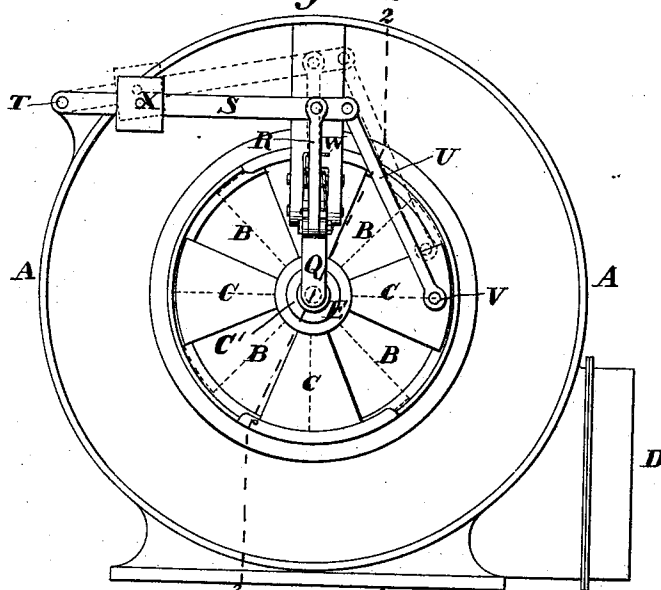
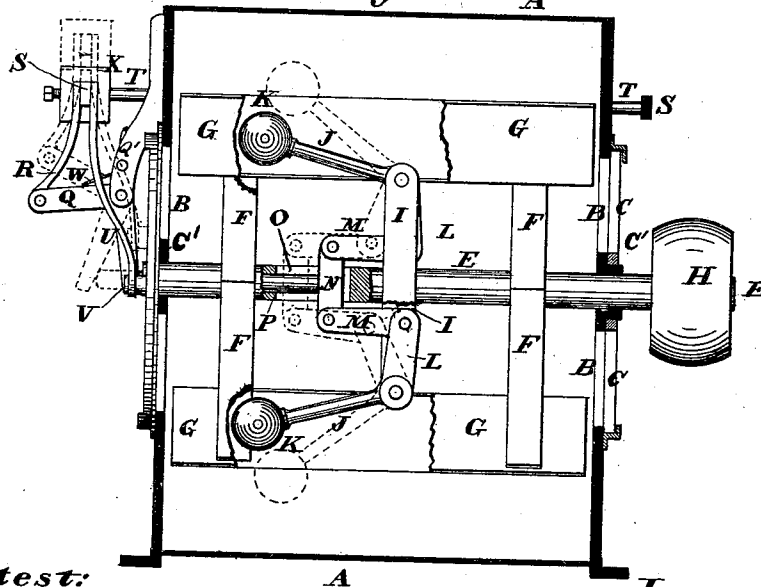


Fig. 2.



Attest:

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UNITED STATES PATENT OFFICE.

ADOLPH KAHL, OF SORENTO, ILLINOIS.

BLAST-REGULATOR FOR FANS.

SPECIFICATION forming part of Letters Patent No. 329,567, dated November 3, 1885.

Application filed November 17, 1884. Serial No. 148,140. (No model.)

To all whom it may concern:

Be it known that I, ADOLPH KAHL, of Sorento, Bond county, Illinois, have invented a certain new and useful Improvement in Blast-Regulators for Fans, of which the following is a full, clear, and exact description, reference being had to the accompanying drawings, forming part of this specification.

This improvement relates to mechanism for regulating the force of the blast of fans.

Figure 1 is a side view of a fan with my improved regulator attached. Fig. 2 is a section at 2 2, Fig. 1, with some parts shown in elevation and some parts broken out.

A is the fan-casing, into which the air enters through registers at the center, the registers having segmental openings B for the passage of air, and segmental valves C upon hubs C', capable of being turned for the purpose of regulating the size of the air-openings B. The construction so far is common in blast-regulators, and needs no further description. The air is discharged from the case through mouth D.

E is the fan-shaft, having arms F, carrying fans or wings G.

H is a belt-pulley by which the shaft is rotated.

I I are arms extending in opposite directions from the shaft, and carrying the ball-levers of the governor. The ball-levers have bell-crank form, each having an arm, J, carrying at its end the ball K, and an arm, L, connected by a link, M, to a cross-piece, N, working in a longitudinal diametric slot through the shaft, such slot being shown at O.

P is a push-rod working in an axial socket in the shaft, said socket extending from the slot at O through the end of the shaft. The outer end of the push-rod bears against one arm of a bell-crank lever, Q, fulcrumed to a bracket-arm, Q', the other end of said lever being connected by a rod, R, to a lever, S, fulcrumed at T to the case, and having its free end connected by a rod, U, to a pin, V, upon the valves C. The arrangement of parts is such that as the balls K are thrown outward by centrifugal force the cross-piece N is pressed against the push-rod, the bell-crank O is forced outward and upward, the lever S is raised, and the air-openings B are partly

closed by the valves C. This movement of the parts is indicated by dotted lines. The outward movement of the governor-balls is opposed by a spring, W, secured to the bracket-arm Q', and bearing upon the bell-crank Q, and a weight, X, which is movable on the lever S, so as to give means for regulating the resistance to the outward movement of the governor-balls. Where the air enters at both ends, as shown in this blower, and which is the preferred construction, there is a similar register upon each end, worked by a similar lever, S, and rod U; but the mechanism by which the governor acts upon the lever S is not duplicated, as both levers S are rigidly attached to the same rock-shaft, T, so that the two levers move synchronously. It is evident that an increase of speed in the shaft E will partly close the air-openings B, and thus counteract the increased blast of the rotary fan arising from the increased speed, and thus a regular blast may be maintained at all speeds.

This blower or fan-regulator is applicable in all cases where a regular blast is required. It may be so constructed as to give a lighter blast at a high speed than at a slower speed, if desired. To illustrate, by the application of the device to a grain-separator the blast should be less when the speed is high, to avoid the blowing over of grain.

I claim—

1. In a blast-regulator for fans, the combination, with the fan-shaft having a diametric slot therethrough and an axial bore or socket extending from said slot to the end of said shaft, of a push-rod occupying said socket, a cross-head passed through and working in said slot in contact with said push-rod, the bell-crank governor-arms, each having a ball at one extremity and connected at the other with said cross-head, and the register acted upon by said push-rod, substantially as set forth.

2. In a blast-regulator for fans, the combination, with the main shaft having a diametric slot therethrough and an axial bore or socket extending from said slot to the extremity of said shaft, a push-rod occupying said bore or socket, and the weighted bell-crank governor-arms connected with said rod, of a bell-crank lever outside of the case, against one arm of

which the push-rod engages, a lever having a weight, the register, and connections between the weighted lever and the bell-crank lever and register, substantially as set forth.

- 5 3. In a blast-regulator for fans, the combination, with the main shaft having a diametric slot therethrough, and an axial bore or socket extending from said slot to the end of the shaft, of a push-rod occupying said socket, a
10 cross-head passed through and working in said slot in contact with said push-rod, the bell-crank governor-arms, each having a weight secured to one end, a link connecting the other

extremity of each of said bell-crank governor-arms with said cross-head, a bell-crank lever 15 pivoted on the outside of the casing, a lever having a weight secured thereto, connection between said weighted lever and the bell-crank lever, the register, and connection between said regulator and weighted lever, substantially as set forth. 20

ADOLPH KAHL.

Witnesses:

SAML. KNIGHT,
GEO. H. KNIGHT.